Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of the claims in the application:

Listing of Claims:

1. (Currently Amended) A system for managing Quality of Service (QoS), session authentication and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between a Network Service Provider (NSP) and/or an Application Service Provider (ASP), and a Customer Premises Network (CPN) that includes a Routing Gateway (RG), the system comprising:

a first subsystem that is configured to manage QoS, session authentication and/or bandwidth allocation for an access session from the CPN, wherein the access session comprises a connection between the NSP and/or ASP and the CPN; and

a second subsystem that is configured to independently manage QoS, session authentication and/or bandwidth allocation for [[an]] a plurality of different application ~~flow~~ flows from the CPN in response to a message from the RAN indicating available QoS, session authentication, and/or bandwidth allocation settings for one of the plurality of application flows, wherein the plurality of application ~~flow comprises~~ flows respectively comprise a set of data packets associated with respective ones [[one]] of a plurality of applications provided via the access session between the NSP and/or ASP and the CPN, wherein the QoS, session authentication, and/or bandwidth allocation for at least two of the plurality of application flows are different.

2. (Original) A system according to Claim 1 wherein the first subsystem comprises a RAN to RG access session message generator that is configured to send an Update Session Bandwidth Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for a session.

3. (Original) A system according to Claim 1 wherein the second subsystem comprises a RAN to RG application flow message generator that is configured to send an Update Application Flow Control Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for an application flow.

4. (Original) A system according to Claim 2 wherein the RAN to RG access session message generator is further configured to send an Update Session Bandwidth Response message from the RAN to the RG to notify the RG of access session bandwidth and/or QoS settings that are stored in the RAN for the CPN.

5. (Original) A system according to Claim 3 wherein the RAN to RG application flow message generator is further configured to send an Update Flow Control Response message from the RAN to the RG to notify the RG of application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN.

6. (Original) A system according to Claim 4 wherein the first subsystem further comprises a RG to RAN access session message generator that is configured to send an Update Session Bandwidth Request message from the RG to the RAN to obtain from the RG access session bandwidth and/or QoS settings that are stored in the RAN for the CPN.

7. (Original) A system according to Claim 5 wherein the second subsystem further comprises a RG to RAN application flow message generator that is configured to send an Update Application Flow Control Request message from the RG to the RAN to obtain from the RG application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN.

8. (Original) A system according to Claim 2 further comprising a RAN to ASP service session message generator that is configured to send an Establish Service Session

Response message from the RAN to the ASP to indicate to the ASP what RAN resources are authorized for an access session.

9. (Original) A system according to Claim 3 wherein the second subsystem further comprises a RAN to ASP application flow message generator that is configured to send a Create Application Flow Control Response message from the RAN to the ASP to indicate to the ASP that an application flow control request from the ASP to the RAN has been accomplished successfully.

10. (Original) A system according to Claim 9 wherein the RAN to ASP application flow message generator is further configured to send a Delete Application Flow Control Response message from the RAN to the ASP to indicate to the ASP that an application flow has been deleted successfully.

11. (Original) A system according to Claim 8 further comprising an ASP to RAN service session message generator that is configured to send an Establish Service Session Request message from the ASP to the RAN to request establishing an access session and to indicate to the RAN a life span of the requested access session.

12. (Original) A system according to Claim 9 wherein the second subsystem further comprises an ASP to RAN application flow message generator that is configured to send a Create Application Flow Control Request message from the ASP to the RAN to request establishing an application flow and to indicate to the RAN a type of application flow, a priority of the application flow and a bandwidth of the application flow.

13. (Original) A system according to Claim 12 wherein the ASP to RAN application flow message generator is further configured to send a Delete Application Flow Control Request message from the ASP to the RAN to request deleting an application flow.

14. (Original) A system according to Claim 12 wherein the ASP to RAN application flow message generator is further configured to send a Change Application Flow Control Request message from the ASP to the RAN to request changing an application flow.

15. (Original) A system according to Claim 12 wherein the ASP to RAN application flow message generator is further configured to send a Query Application Flow Control Request message from the ASP to the RAN to query the RAN as to what resources are assigned to an application flow.

16. (Original) A system according to Claim 15 wherein the RAN to ASP application flow message generator is further configured to send a Query Application Flow Control Response message from the RAN to the ASP to indicate to the ASP what resources are assigned to an application flow.

17. (Original) A system according to Claim 12 wherein the ASP to RAN access session message generator is further configured to send a Query Session Bandwidth Request message from the ASP to the RAN to query the RAN as to what resources are assigned to an access session.

18. (Original) A system according to Claim 17 wherein the RAN to ASP access session message generator is further configured to send a Query Session Bandwidth Response message from the RAN to the ASP to indicate to the ASP what resources are assigned to an access session.

19. (Original) A system according to Claim 8 wherein the RAN to ASP service session message generator is further configured to send a Terminate Service Session Response message from the RAN to the ASP to indicate to the ASP whether a session has been terminated successfully.

20. (Original) A system according to Claim 11 wherein the ASP to RAN service session message generator is further configured to send a Terminate Service Session Request message from the ASP to the RAN to request terminating a session.

21. (Original) A system according to Claim 2 further comprising a RAN to NSP service session message generator that is configured to send an Establish Service Session Response message from the RAN to the NSP to indicate to the NSP what RAN resources are authorized for a service session.

22. (Original) A system according to Claim 21 further comprising an NSP to RAN service session message generator that is configured to send an Establish Service Session Request message from the NSP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session.

23. (Original) A system according to Claim 21 wherein the NSP to RAN access session message generator is further configured to send a Change Session Bandwidth Request message from the NSP to the RAN to change the QoS and/or bandwidth provided by the RAN for an access session.

24. (Original) A system according to Claim 21 wherein the NSP to RAN access session message generator is further configured to send a Query Session Bandwidth Request message from the ASP to the RAN to query the RAN as to what resources are assigned to an access session.

25. (Original) A system according to Claim 21 wherein the RAN to NSP service session message generator is further configured to send a Terminate Service Session Response message from the RAN to the NSP to indicate whether a session has been terminated successfully.

26. (Original) A system according to Claim 22 wherein the NSP to RAN service session message generator is further configured to send a Terminate Service Session Request message from the NSP to RAN to request terminating a session.

27. (Currently Amended) A method for managing Quality of Service (QoS), session authentication and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between a Network Service Provider (NSP) and/or an Application Service Provider (ASP), and a Customer Premises Network (CPN) that includes a Routing Gateway (RG), the method comprising:

sending an Update Session Bandwidth Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for an access session, wherein the access session comprises a connection between the NSP and/or ASP and the CPN;

sending an Update Application Flow Control Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for [[an]] at least one of a plurality of different application ~~flow~~ flows, wherein the plurality of application ~~flow comprises~~ flows respectively comprise a set of data packets associated with respective ones [[one]] of a plurality of applications provided via the access session between the NSP and/or ASP and the CPN;

sending an Update Session Bandwidth Response message from the RAN to the RG to notify the RG of access session bandwidth and/or QoS settings that are stored in the RAN for the CPN; and

sending an Update Flow Control Response message from the RAN to the RG to notify the RG of application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN, wherein the bandwidth and/or QoS settings for at least two of the plurality of application flows are different.

28. (Previously Presented) A method according to Claim 27 further comprising;

sending an Update Session Bandwidth Request message from the RG to the RAN to

obtain from the RG access session bandwidth and/or QoS settings that are stored in the RAN for the CPN; and

sending an Update Application Flow Control Request message from the RG to the RAN to obtain from the RG application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN.

29. (Original) A method according to Claim 27 further comprising:

sending an Establish Service Session Response message from the RAN to the ASP to indicate to the ASP what RAN resources are authorized for a service session; and

sending a Create Application Flow Control Response message from the RAN to the ASP to indicate to the ASP that an application flow control request from the ASP to the RAN has been accomplished successfully.

30. (Original) A method according to Claim 27 further comprising

sending an Establish Service Session Request message from the ASP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session; and

sending a Create Application Flow Control Request message from the ASP to the RAN to request establishing an application flow and to indicate to the RAN a type of application flow, a priority of the application flow and a bandwidth of the application flow.

31. (Original) A method according to Claim 27 further comprising:

sending an Establish Service Session Response message from the RAN to the NSP to indicate to the NSP what RAN resources are authorized for a service session; and

sending an Establish Service Session Request message from the NSP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session.

32. (Currently Amended) A computer program product that is configured to

manage Quality of Service (QoS), session authentication and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between a Network Service Provider (NSP) and/or an Application Service Provider (ASP), and a Customer Premises Network (CPN) that includes a Routing Gateway (RG), the computer program product comprising a computer usable storage medium having computer-readable program code embodied in the medium, the computer-readable program code comprising:

computer-readable program code that is configured to manage QoS, session authentication and/or bandwidth allocation for an access session from the CPN, wherein the access session comprises a connection between the NSP and/or ASP and the CPN; and

computer-readable program code that this configured to independently manage QoS, session authentication and/or bandwidth allocation for [[an]] a plurality of different application ~~flow~~ flows from the CPN in response to a message from the RAN indicating available QoS, session authentication, and/or bandwidth allocation settings for one of the plurality of application flows, wherein the plurality of application ~~flow comprises~~ flows respectively comprise a set of data packets associated with respective ones [[one]] of a plurality of applications provided via the access session between the NSP and/or ASP and the CPN, wherein the QoS, session authentication, and/or bandwidth allocation for at least two of the plurality of application flows are different.

33. (Original) A computer program product according to Claim 32 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an access session from the CPN comprises computer-readable program code that this configured to send an Update Session Bandwidth Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for a session.

34. (Original) A computer program product according to Claim 32 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN comprises computer-readable program code that

this configured to send an Update Application Flow Control Info message from the RAN to the RG to notify the RG when new bandwidth and/or new QoS information is available for an application flow.

35. (Original) A computer program product according to Claim 33 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an access session in the CPN further comprises computer-readable program code that this configured to send an Update Session Bandwidth Response message from the RAN to the RG to notify the RG of access session bandwidth and/or QoS settings that are stored in the RAN for the CPN.

36. (Original) A computer program product according to Claim 34 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN further comprises computer-readable program code that this configured to send an Update Flow Control Response message from the RAN to the RG to notify the RG of application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN.

37. (Original) A computer program product according to Claim 35 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an access session in the CPN further comprises computer-readable program code that this configured to send an Update Session Bandwidth Request message from the RG to the RAN to obtain from the RG access session bandwidth and/or QoS settings that are stored in the RAN for the CPN.

38. (Original) A computer program product according to Claim 36 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN further comprises computer-readable program code that this configured to send an Update Application Flow Control Request message from

the RG to the RAN to obtain from the RG application flow bandwidth and/or QoS settings that are stored in the RAN for the CPN.

39. (Original) A computer program product according to Claim 33 further comprising:

computer-readable program code that this configured to send an Establish Service Session Response message from the RAN to the ASP to indicate to the ASP what RAN resources are authorized for a service session.

40. (Original) A computer program product according to Claim 34 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN further comprises computer-readable program code that this configured to send a Create Application Flow Control Response message from the RAN to the ASP to indicate to the ASP that an application flow control request from the ASP to the RAN has been accomplished successfully.

41. (Original) A computer program product according to Claim 39 further comprising:

computer-readable program code that this configured to send an Establish Service Session Request message from the ASP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session.

42. (Original) A computer program product according to Claim 40 wherein the computer-readable program code that is configured to manage QoS and/or bandwidth allocation for an application flow in the CPN further comprises computer-readable program code that this configured to send a Create Application Flow Control Request message from the ASP to the RAN to request establishing an application flow and to indicate to the RAN a type of application flow, a priority of the application flow and a bandwidth of the application flow.

43. (Original) A computer program product according to Claim 33 further comprising:

computer-readable program code that this configured to send an Establish Service Session Response message from the RAN to the NSP to indicate to the NSP what RAN resources are authorized for a service session.

44. (Original) A computer program product according to Claim 43 further comprising:

computer-readable program code that this configured to send an Establish Service Session Request message from the NSP to the RAN to request establishing a service session and to indicate to the RAN a life span of the requested service session.